

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
25 March 2004 (25.03.2004)

PCT

(10) International Publication Number  
**WO 2004/025469 A1**

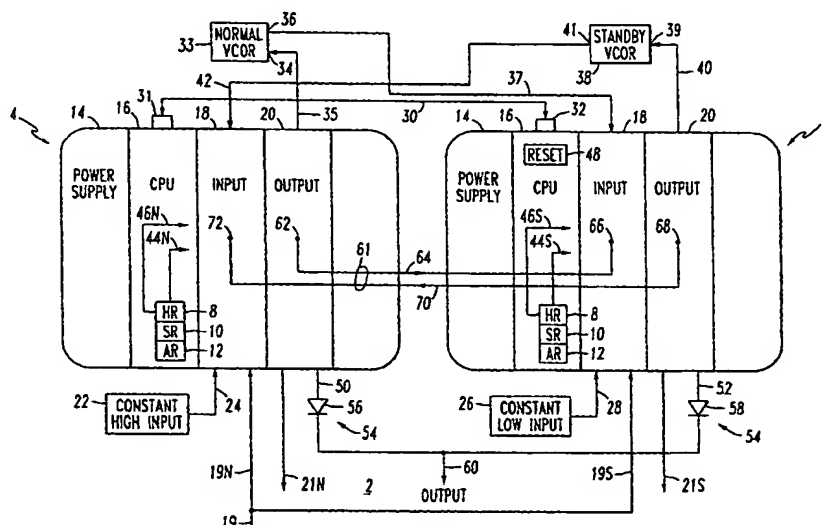
- (51) International Patent Classification<sup>7</sup>: **G06F 11/00**
- (21) International Application Number:  
PCT/US2003/028149
- (22) International Filing Date:  
9 September 2003 (09.09.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/409,425 10 September 2002 (10.09.2002) US
- (71) Applicant (for all designated States except US): **UNION SWITCH & SIGNAL, INC.** [US/US]; 1000 Technology Drive, Pittsburgh, PA 15219-3120 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **BLEVINS, Joseph, S., Sr.** [US/US]; 736B NE Sunnyside School Road, Blue Springs, MO 64014 (US).
- (74) Agent: **Houser, Kirk, D.; Eckert Seamans Cherin & Mellott, LLC**, 600 Grant, 44th Floor, Pittsburgh, PA 15219 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,

[Continued on next page]

(54) Title: **HOT STANDBY METHOD AND APPARATUS**



(57) Abstract: An apparatus provides hot standby operation with normal and standby processors, each of which includes vital inputs electrically interconnected with the vital inputs of the other processor, vital outputs, and an application routine inputting the vital inputs and outputting the vital outputs. Communication ports communicate with communication ports of the other processor. A health routine provides a health status after communication is established with the other processor. A vital relay includes an input controlled by a vital output and an output to a vital input of the other processor. A synchronization routine provides a synchronization status through the communication ports. The application routine outputs the vital outputs when the synchronization status is set. The standby processor includes a reset routine, which resets the standby processor when the health status of that processor is not provided. A vital "OR" circuit outputs from the vital outputs of the normal and standby processors.



FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*